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FERMENTATION PROCESS FOR PRODUCTION OF VITAMIN B_{12}

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The following observations are offered pending publication of a detailed manuscript now in preparation. The process has proved workable under commercial plant conditions. Bacteriophages were encountered for the original strain B-938, for other strains isolated from soil, and for phage-resistant sub-strains derived from the original strains. Resistant forms were obtained by outgrowth of mass cultures, except in cases of multiple infections as demonstrated by phage morphology. A number of different isolates from nature, or their sub-strains, give comparable yields in submerged propagations on beet molasses medium. Propagations as short as six hours from inoculation to harvest have been obtained. With this rapid growth rate the outlook for continuous propagation is good. Sucrose concentrations of 6% or less give superior results in batch propagations. The whole culture was drum-dried without loss of vitamin B_{12}. The bacterial cells may be recovered with a yeast centrifuge, washed, and drum-dried to give a pale-tan, palatable product. It has shown no antibacterial activity against several Gram-positive and Gram-negative bacteria. The product is now being tested for chronic toxicity by the Pharmacology Laboratory of this Bureau. Rat weights have not been adversely affected at 200 days by inclusion of 10 percent in the ration.